WHAT IS CLAIMED IS:

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1. A multiple measurement and memory electronic ear thermometer, comprising:

a keypad unit including an activation key, wherein when the activation key is pressed, the keypad unit is operative to generate an input signal;

a microprocessor in electric communication with the keypad unit, the microprocessor being operative to generate a first control signal in response to the input signal;

an ear temperature measuring unit, operative to measure ear temperature from a first user in response to the first control signal generated by the microprocessor and convert the ear temperature into an electric signal sent to the microprocessor to generate a second control signal;

a display unit, operative to display the ear temperature in response to the second control signal; and

a memory unit, being partitioned into a plurality of individual memory sectors, wherein a first memory sector is operative to save the ear temperature in response to the second control signal.

- 2. The thermometer of Claim 1, wherein each of the memory sectors is in the form of a queue data structure.
- 3. The thermometer of Claim 1, wherein the display unit includes a liquid crystal display.
- 4. The thermometer of Claim 1, wherein the memory unit includes an electrically erasable and programmable read only memory (EEPROM) or a random access memory (RAM).
- 5. The thermometer of Claim 1, wherein the ear temperature measuring unit is also operative to count time for ear temperature measurement.
- 6. The thermometer of Claim 1, wherein the ear temperature measuring unit is operative measure a second user in response to the first

control signal, and a second memory sector is operative to save the ear temperature measured from the second user in response to the second control signal.

- 7. The thermometer of Claim 1, wherein the keypad unit further includes a key for inputting a number of users.
 - 8. The thermometer of Claim 7, wherein the keypad unit further includes a key for inputting identification code for each user.